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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/823,126      | 03/30/2001  | Blaise B. Fanning    | 42390P10571         | 6833             |

8791 7590 09/25/2002

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EXAMINER

PORTKA, GARY J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2187

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

*Handwritten signature*

# Office Action Summary

Application No.  
09/823,126

Applicant(s)  
Fanning et al.

Examiner  
Gary J. Portka

Art Unit  
2187



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Mar 30, 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Mar 30, 2001 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

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***DETAILED ACTION***

1. The Office acknowledges receipt of the following:
  - a. Executed Declaration, dated July 16, 2001.
2. Claims 1-30 are presented for examination.

***Claim Objections***

3. The disclosure is objected to because of the following informalities:
  - a. Claims 2, 9, 12, 19, 22 and 29 are objected to. Each of claims 2, 12, and 22 recites “one of” a queue and a CAM, alternative language which is read on by any reference having either of the recited limitations. Claims 9, 19, and 29 depend upon these respective claims and recite further limitations regarding the CAM, thus making it unclear whether it was intended for the original claims to definitely include the CAM limitation. Hereinbelow the CAM limitation is only treated where required by the claim language.
  - b. Claims 8, 18, and 28 are objected since “the comparators” lacks proper antecedent basis.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-5 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Lopez-Aguado et al., U.S. Patent 5,996,061.

6. As to claims 1 and 11, Lopez-Aguado discloses the apparatus and method including storage circuit 150 coupled to a prefetcher and storing prefetch requests as recited (see Figures 4 and 5, column 7 lines 50-59), and canceler to cancel the access request when it corresponds to at least P of the stored requests (see column 7 line 66 to column 8 line 8).

7. As to claims 2 and 12, Lopez-Aguado teaches the storage element is a queue of predetermined size (150).

8. As to claims 3 and 13, the queue 150 is a plurality of registers shifting the prefetch addresses to the extent claimed.

9. As to claims 4 and 14, matching circuit is inherent to determine if "the derived prefetch address is already stored within the prefetch queue 150" (column 7 lines 66-67).

10. As to claims 5 and 15, cancel generator as recited is disclosed since the derived prefetch address is discarded (column 8 line 1).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. Claims 6-10 and 16-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lopez-Aguado et al., U.S. Patent 5,996,061, in view of Jacobs, U.S. Patent 6,134,633.

13. As to claims 6-10 and 16-20, Lopez-Aguado teaches the invention substantially as discussed above with regard to claims 1-5 and 11-15. Lopez-Aguado does not teach the specific limitation that there are a plurality of comparators to compare the prefetch address with the stored addresses, combining the comparison results, or the matching of entries with a CAM. However, in an analogous prefetching circuit Jacobs teaches a fully associative comparison with elements of the prefetch queue (see Figure 2, and column 6 line 64 to column 7 line 10); this teaching fully embodies all the limitations discussed. An artisan would have desired to use a fully associative search for the prefetch address because the parallel comparison with all elements in the storage is faster and removes any considerations as to where elements need to be placed. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to include a plurality of comparators, combining comparison results, and/or a CAM, because it was well known that such a search in a prefetch queue is fast regardless of where elements are in the queue.

14. As to claims 21-30, the Lopez-Aguado and Jacobs combination teaches the invention substantially as described above with regard to claims 1-20. Lopez-Aguado does not teach that the storage circuit, prefetcher, and canceler are part of a chipset coupled to the processor. As shown in Figures 3 and 4, these items are disclosed as part of the CPU. However, the combination or separation of functionally equivalent parts is not generally given patentable weight. Jacobs shows a processor coupled to the equivalent chipset with prefetch resources at Figure 1 and at column 4 lines

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53-62. An artisan would have been motivated to use a chipset as recited coupled to the processor instead of the integrated unit taught by Lopez-Aguado, because these parts might be more readily available, or might already be partly implemented in an existing system, thus saving cost and/or time. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the storage circuit, prefetcher, and canceler in a chipset coupled to the processor, because this might save time and cost by using readily available or existing parts.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No.

6,453,389 B1 Prefetcher which merges prefetches into queued requests.

6,438,656 B1 Cancellation of prefetch requests after predetermined time lapse.

6,216,208 B1 Prefetch queue which responds to read requests.

16. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in Abandonment of the application (see 35 USC 133, MPEP 710.02, 710.02(b)).

17. Any inquiry concerning this communication from the examiner should be directed to Gary J. Portka at telephone number (703) 305-4033. The examiner can normally be reached on weekdays from 9:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Do Yoo, can be reached at (703) 308-4908.

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Any response to this action should be mailed to (or faxed as provided below):

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Fourth Floor (Receptionist).

The fax phone number for the organization where this application or proceeding is assigned  
are as follows:

(703) 746-7238 (After Final communications)

(703) 746-7239 (Official communications)

(703) 746-7240 (Status inquiries, draft communications)

Any inquiry of a general nature relating to this application or proceeding should be directed  
to the Group receptionist, whose telephone number is (703) 305-3900.

Gary J. Portka



Patent Examiner

September 22, 2002